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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,671	09/12/2005	Jae Min Oh	50098/011001	9560
21559	7590	10/19/2007		
CLARK & ELBING LLP 101 FEDERAL STREET BOSTON, MA 02110			EXAMINER LISTVOYB, GREGORY	
			ART UNIT 1796	PAPER NUMBER
			NOTIFICATION DATE 10/19/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentadministrator@clarkelbing.com

## Office Action Summary

Application No.

10/525,671

Applicant(s)

OH ET AL.

Examiner

Gregory Listvoyb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 is/are allowed.
- 6) ☒ Claim(s) 1, 3-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

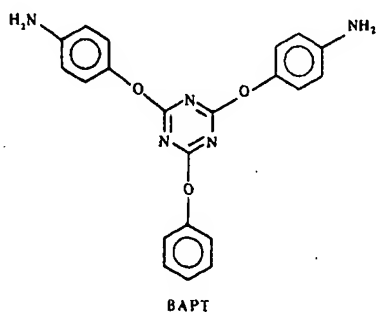
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 rejected under 35 U.S.C. 102(b) as being anticipated by Melissaris et al (New crosslinkable polyimides... Eur. Polymer Journal , vol 25 455-460 (1989)), herein Melissaris (necessitated by Amendment).

Melissaris discloses the following diamine structure (see Page 455):



Which is identical to one, recited in Claims 1 (Formula 1), when A is -O-, B is -O- and C is cyclic monovalent group.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 and 3-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamonzon et al (US patent 6316170), herein Kawamonzon in combination with Melissaris.

Kawamonzon discloses a polyamic solution and a liquid crystal optical element member (Column 1, line 15) based on heterocyclic cycle (triazine) containing polyimide (Column 9, line 50).

Regarding Claims 3 -5, Kawamonzon discloses a polyamic acid, comprising a tetravalent aromatic or alicyclic group (column 13, line 45) and aromatic diamines compound (Column 14, line 35, column 16, line 50) and siloxane -based diamines (Column 18, line 35), which is present in the amount of 0.02-0.2 molar equivalent of all the diamines compounds (column 19, line 5).

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Regarding claim 6-7, a dianhydride comprising an aromatic or alicyclic group or their mixture (Column 14, lines 25 and 50).

Kawamonzen discloses that inherent viscosity of the above polyamic acid is between 0.3 dl/g and 1.5 dl/g, meeting the limitations of Claim 8 regarding MW between 10 K and 500K.

Kawamonzen does not teach bis-phenyl substituted triazine cycle of Claim 1 and a polyamic acid based on the above diamine.

Melissaris teaches diamines and polyimides based on bis-phenyl substituted triazine cycle (see page 456). Triazine substitutes significantly change light adsorption pattern of the material, which can be useful for liquid crystal alignment device.

Therefore, it would have been obvious to a person with ordinary skills in the art to use Melissaris's diamines in Kawamonzen's composition used for liquid crystal optical device in order to improve its light adsorption pattern.

Claims 1 and 3-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Machido et al (US patent 6159654), herein Machido in combination with Melissaris.

Machido discloses a polyamic solution and a liquid crystal aligning agent (Column 1, line 15) based on heterocyclic cycle (triazine) containing polyimide (Column 3, line 55).

Regarding Claims 3 -5, Machido discloses a polyamic acid , comprising a tetravalent aromatic or alicyclic group (column 5, line 20) and aromatic diamines compound (Column 5, line 20) and siloxane –based diamines (Column 9, line 10).

Regarding claims 6-11, Machido discloses a method of forming liquid crystal element layer by coating polyamic acid onto substrate and entirely or partly imidizing the coating (Column 3, line 45).

Machido does not teach bis-phenyl substituted triazine cycle.

Melissaris teaches diamines and polyimides based on bis-phenyl substituted triazine cycle. Triazine substitutes significantly change light adsorbtion pattern of the material, which can be useful for liquid crystal alignment device.

Therefore, it would be obvious to a person with ordinary skills in the art to use Melissaris's diamines in Machido's composition used for liquid crystal alignment film in order to improve light adsorbtion pattern of the material.

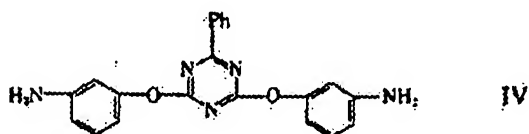
***Allowable Subject Matter***

Claim 2 allowed.

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A reason for this allowance is that the search for related Prior Art does not result in a diamine structure of Formula (1) where A is wherein A is -O- or -COO-; B is a direct bond; and C is a C 1-30 linear or branched aliphatic hydrocarbon group, a saturated cyclic hydrocarbon group, or a fused saturated or unsaturated cyclic hydrocarbon group.

The closest Prior Art found is Butuc et al (cited in the previous Office Action) where diamine has the following structure (see Table 1):



In the above formula (IV) A is -O-, B is direct bond and C is Phenyl. The Phenyl substitute does not meet the limitations of Claim 2, since it is not aliphatic or fused cyclic compound.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 and 3-8 have been considered but are moot in view of the new ground(s) of rejection.

The new reference (Melissaris, see discussion above) meets the limitations of Amended Claim 1.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 10am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb  
Examiner  
Art Unit 1796

GL

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RABON SERGENT  
PRIMARY EXAMINER